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EXTENSIVE INDIVIDUAL READING VERSUS CLASS READING

A STUDY OF THE DEVELOPMENT OF READING ABILITY IN THE TRANSITION GRADES

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By
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Teachers College, Columbia University
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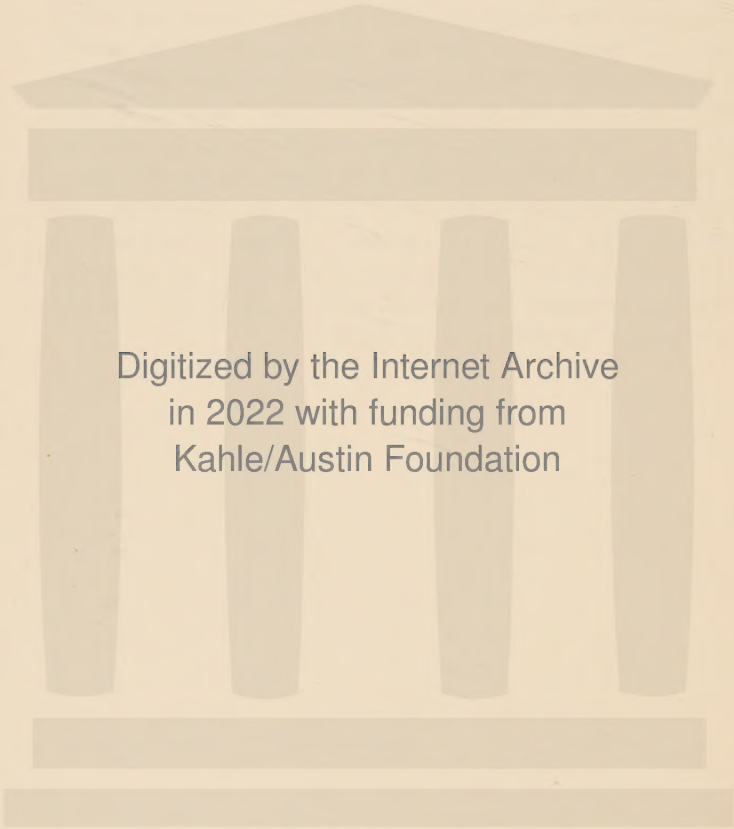
H. A. F.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EXTENSIVE INDIVIDUAL READING VERSUS CLASS READING

CHAPTER I

INTRODUCTION

There is need for a more clearly defined and generally accepted point of view regarding the amount and quality of reading to be done by children in the lower elementary grades. Among many controversial points in this field which would repay study is that which involves an evaluation of extensive individual and intensive class reading procedures. Studies have been made and valuable findings published in regard to various elements in these procedures in high school and college, but thus far little has been done to throw light upon the relative effectiveness of intensive and extensive reading procedures in the elementary grades, especially the lower grades.

There are many unsubstantiated opinions about the development of good reading habits through intensive and extensive reading, but these opinions differ. Among those most frequently expressed by public school teachers are the following:

1. Extensive reading cannot be used with large classes, such as those found in the public schools.
2. Extensive reading is, perhaps, suitable for children in private schools but not for those in public schools.
3. The teacher cannot be sure that proper growth in reading ability is taking place through extensive reading because it is impossible to tell whether children are really reading without hearing them read or having them answer questions on what they have read. The teacher cannot take time to do these things with each child individually.
4. Extensive reading can be used with advantage in the upper grades but not in the lower grades.
5. Bright children can be taught by extensive reading procedures but dull children need to read intensively.
6. Children in high sections of the grades can use extensive

reading to advantage but those in low sections have to be told what and how to read and, therefore, can read only a limited amount of material.

7. Retarded children need intensive reading but normal and under-age children may gain in reading ability through the use of extensive reading.
8. Good teachers can be trusted to use extensive reading procedures but poor teachers fail unless they use intensive methods.
9. The materials for extensive reading cost so much more than those for intensive reading that public schools cannot use the former procedure.

Philosophically speaking, extensive reading would have the advantage over intensive reading since it tends to develop certain independent reading habits which are highly valued by philosophical thinkers. Perhaps this is one of the reasons why it is sometimes said by university people that extensive reading is of undoubted value and that it is widely used in the schools of to-day. As a matter of fact, it is not used widely, as one can find out by visiting the next ten public schools he happens to pass. It is to be remembered, of course, that the *public* schools are educating the boys and girls of America.

So it is that the theorist stands for extensive reading while the teacher goes on teaching by intensive reading procedures. Each misunderstands and thinks the other is wrong. Perhaps both are right.

It is the purpose of this study to find out something about the relative effectiveness of these two types of procedure for the lower elementary grades. Only one part of the whole problem can be undertaken at a time, if results are to be definitely conclusive. The part chosen for this study deals with the building up of general reading ability in typical public school situations. This general ability in reading is exceedingly important, for the needs of intelligent everyday life so constantly demand its use that the schools must see to it that it is developed in every child.

Throughout this study extensive reading is called extensive individual reading and intensive reading is called class reading.

CHAPTER II

THE PROBLEM

Which is more valuable in building up *skills in reading* in the second, third, and fourth grades—*extensive individual reading* or *class reading?*

Skills in reading are here taken to be those skills which are measured by the better type of reading tests, such as reading and understanding paragraph meaning, sentence meaning, word meaning, etc., which build up the reading ability that is of use in daily life.

Extensive individual reading here refers to reading done by pupils in their regular classroom reading periods, from material fitted to their reading ability and chosen by them individually, under the guidance of the teacher, from among many books. The reading is done silently and the material read is usually discussed, in part or as a whole, with the teacher, the class, groups of pupils, or individual pupils, as the case may be. A pupil reads at his own rate and goes to new material as soon as he finishes the old.

Class reading here refers to reading done by all pupils in a class (or by the groups into which the pupils of a class are divided for teaching purposes) at the same time. Every pupil has a copy of the same book, which is chosen by the teacher. All read the same material, either silently or orally, during any class period. Children are assumed to progress through these books at the same rate.

The need for a study of the values of the two procedures in building up reading ability among children in the lower grades has grown out of the fact that there are two groups of people interested in elementary education who think differently about the relative effectiveness of the two procedures. They are teachers.

The teachers comprising the first group are in public school classrooms and teach most of the children of the United States. They teach fairly successfully by the class reading procedure.

These teachers, or most of them, teach the so-called basal methods of reading in which class reading of a highly teacher-directed type is inherent both in method and in material. Though in many cases they are not compelled to use such a method, they tend to do so, partly because they think it is a requirement of the administration of the school system in which they teach (which, indeed, it sometimes is) or because it is an easy way and one to which they are accustomed, and partly because they do not know how to teach extensive individual reading.

The second group of teachers is made up largely of progressive educational people who teach in universities, colleges, and normal schools, and of skilled teachers in the more favored private and public demonstration schools who could perhaps succeed with almost any method. These teachers, using the extensive individual procedure, do succeed, and those who have the privilege of watching their work grow enthusiastic over their success and send along word of it through students in normal schools and university classes. For some reason, however, these same students often go back to class reading when they are confronted by a class of children. Perhaps they think the extensive individual procedure is good in theory but not feasible with large classes under public school conditions; or perhaps they have not developed a technique for using it.

Now it is quite possible that one of the two procedures is better for use in public schools. If so, the sooner the superiority of that one is established, the better.

It is the purpose of this study to attempt to throw some light on the relative effectiveness of the two procedures in building up reading ability in the second, third, and fourth grades of the public schools. To this end an experiment was set up in 1927-28 involving sixty-two classes in thirteen schools in two public school systems, a description of which is given in the following chapters.

Summary

There is disagreement among teachers as to whether reading skills can be developed better in the lower elementary grades through extensive individual reading or through class reading. A comparative study has been carried on in public schools to determine the relative value of the two procedures.

CHAPTER III

THE GENERAL PLAN

In the general plan for work connected with the comparative study of the two reading procedures, as stated in Chapter II, the people and situations concerned were given careful consideration. Since such a study involves the activity of many people over a long period, the human element in the situation was given very careful attention. Pupils, teachers, supervisors, administrators, and parents were considered in relation to the differences which a study along this line would make in their activities, the extra work it might cause them to do, and the values which might accrue to them as a result of the work. The type of school system under which this work might best be done and the availability of records and of materials needed were also considered, since results of the study might be affected by these more material sides of the problem.

It was recognized that the human element in the situation would require careful consideration. Chapter V, "Getting the Work Started," deals with that problem; the present chapter is concerned with the principles underlying the selection of the participants in the study from the less personal side.

Average public schools rather than private or specially favored schools were selected as being typical of those which might ultimately be affected by the results of this study. The great bulk of the child population is taught in the public schools; hence if practice in general is to be improved as the result of scientific study that study might well be carried on in these schools. This is particularly true when the attitudes of the persons concerned are such a large factor—perhaps the determining factor—in the success of the experiment. The classes used were in schools such as we might find anywhere; the teachers and pupils in them made up representative groups physically, socially, and intellectually, so far as this was possible to arrange.

The school systems to be used in the study were selected on three bases:

1. They were large enough to provide pupils and teachers in sufficient numbers to give a wide range in ability and social background.
2. There was on file in their records certain accurate information about the children in their classes.
3. They were near enough to the residence of the director of the experiment (hereafter called the research worker) to make work in them feasible.

The administrators in the systems used were, of necessity, men and women who were hospitable to the idea of making a scientific study for the purpose of improving practice. Their enthusiasm for the study was an important factor in setting up and carrying on the work because of the help it gave in building up teacher morale. Willingness on the part of these people to have the study carried on and their interest in it undoubtedly had a large influence in making it successful. Especially in the case of the supervisors was this influence evident, for they not only openly approved the work but helped to maintain it on a high plane by keeping their personal ideas out of the situation and by stressing the fact with their teachers that only by conforming to the directions and suggestions provided for them could the results of the study be helpful.

The teachers participating in the work were average so far as any school system provides average teachers. They were selected because they happened to be teaching the classes that were available for the work. As it chanced, they were old and young, experienced and inexperienced, well trained and poorly trained. The supervisor and research worker carefully avoided consideration of their skill in teaching, preferring to have them an unselected group in the hope that they might be representative of public school teachers at large. This was probably the case, for a large number of teachers (sixty-three) took part in the work. The only stipulation made was that they should be willing to carry on the work. Wherever possible they were given their preference in the type of work (individual or class) which they were to do. This was done so that there might be a wholesome

attitude toward the experiment in order that it might be as fair to both sides as possible.

As has been said, the second, third, and fourth grades were selected as those in which the need for study of this problem was greatest, since it is about those grades that there has been the greatest disagreement concerning the use of individual or class procedure in teaching reading. The former procedure is used more and more in grades above the fourth, while first grade reading presents a problem of its own because teaching beginners reading involves specialized skill. Grades two, three, and four may be called the transition grades, for it is in these grades that the skills started in the first grade are improved to a point where it may be said that pupils "can read." This point is usually reached at the beginning of the fifth grade. During these three years in the lives of elementary school pupils, they acquire ease, assurance, and fluency in their reading. It has not been established that one procedure has greater advantage than the other with any group of transition-grade pupils in accomplishing this end.

Materials for carrying on the two types of procedure were those already provided for use in the systems in which the work was done. No material was added, as the work under the plan was to be carried on under typical public school conditions with regard to pupils, teachers, and materials. The books read by the pupils were selected by the teachers, principals, and supervisors in the same way that they would have been selected if no comparative study had been in progress.

Two factors which concerned the parents of the pupils in part determined the selection of the schools to be used. They were: First, the parents were persons who were not likely to object to a comparative study of the type proposed. Second, they represented a wide range in social background—the poor and the rich, the worker and the idler, the professional and the unskilled worker, the American and the foreign born—just as we find them in any typical community in the United States.

Not the least part of the general plan consisted in the determination on the part of the research worker that sincerity and frankness should prevail throughout the study. No pupil, teacher, or other person concerned could have cause to feel that he was being used for the advantage of any outside individual or group

of individuals. Throughout the course of the experiment, the teachers, supervisors, and research worker recognized that they were engaged in a *really* coöperative enterprise and all hoped that it would improve the chances for good work in the classrooms of the future. Only in such a spirit can scientific study involving such large numbers of pupils and teachers be carried forward.

Summary

The general plan for the study involved the selection of representative groups of children, teachers, and working conditions in representative public school systems where the work might be carried on. It involved limiting the study to grades in which the need for it was greatest, that is, the transition grades (second, third, and fourth). It involved the development of a sincere desire on the part of all concerned to carry the work forward in the scientific spirit.

CHAPTER IV

SELECTING THE PUPILS FOR THE STUDY

The research worker, having selected six public school systems as suitable for the proposed study and having secured credentials and introductions to the superintendents, sent the following letter to each superintendent:

My dear .....:

At the suggestion of ....., who is, I believe, writing you within a day or two, I am about to ask your coöperation in an experimental study which I hope to carry on during the remainder of the present school year with the advice and help of the Department of Elementary Education of Teachers College.

It is my plan to carry on an experiment to find out something about the relative effectiveness of two procedures in teaching reading in the second, third, and fourth grades. There is disagreement among school authorities and among instructors in departments of education in colleges and normal schools as to which of these procedures is more effective in producing skills in reading and desirable attitudes toward reading. At the moment I am searching for suitable schools in which to carry forward a comparative study of the two procedures in question. This letter is to ask you if you would be willing to allow certain of your teachers to participate in this investigation. In order that you may understand just what difference work such as I propose would make to you, to the children, to the teachers, principals, and parents in the school system in your charge, I enclose several sheets which contain a brief estimate of some of the problems involved. May I ask that, after examining them, you will say quite frankly whether or not you care to give me the privilege of carrying on part of this work in your schools.

If you decide to allow me to do this work will you be so kind as to let me know when I may talk the matter over with you? I am free on Monday and Wednesday afternoons and all day Saturday.

Very truly yours,

Enclosed in each letter was a statement of the general plan, which set forth the problem and briefly called attention to the factors involved in such a comparative study. It is reproduced on the following pages.

GENERAL CONSIDERATIONS

PROCEDURES TO BE COMPARED

Extensive Reading

Reading taught through silent individual reading.
Single copies of books used.
No sets of books.

Class Reading

All children use same book.
All children read same story at same time.

Classes Used

Grades two, three, and four.
Two classes of same grade in same building in all cases.
If possible, pairs of classes in each grade level (second, third, fourth) in same building. Not necessary but desirable.

Children

Should be of approximately normal intelligence and, in general, of English-speaking parentage.

Teachers

Interested in improving the teaching of reading. Willing to follow simple directions and keep simple records.

Records

Research worker would need to use records of reading and intelligence tests on file in superintendent's office or the office of the principal of the school.

Tests

If no records of tests are on file the research worker would need the privilege of giving achievement and intelligence tests.

Results

The research worker should have the right to publish results of the experiment should they prove useful in determining desirable reading procedures for children in second, third, and fourth grades.

In addition to this, two sheets were enclosed containing brief remarks about certain points the research worker thought might be raised in regard to the attitudes and activities of the various persons involved. That there might be no misunderstanding relative to the attitudes necessary for successful participation in an experimental study in the field of reading, or to what each person participating in such a study would need to do, the position of the

research worker on these points was expressed specifically. The following pages give this statement:

Effect on People Connected with This Work

CHILDREN

Since both of these procedures have been used successfully in teaching children in these grades there would be no known disadvantage to either group of children.

Since there would be no interference with the administration of the school (no teachers exchanging classes for parts of the work, for example), children need not know that reading is being controlled, thus no undue amount of strain would be felt by them.

In short, children would be working under natural conditions.

TEACHERS

Teachers would have their attention directed specifically to teaching of reading over a period of several months—which would benefit them because of the intensive quality of the work, a quality which usually improves teaching in the subject given such attention.

Teachers would need to follow simple directions and from time to time fill out certain record blanks provided by the research worker. An attempt would be made to keep this from being a burden to the teachers in the amounts of time and effort required.

Teachers would perhaps need to rearrange their time schedules slightly to make it possible for all children working in the classes used to spend the same amount of time per day on reading. This should not interfere to a disturbing degree.

Teachers would need to find and to arrange books for the work where the proper books are not already in their rooms. Printed suggestions from the research worker should make selection of books fairly easy.

THE SUPERINTENDENT

The superintendent would be put to the trouble of choosing the teachers who are to participate and would need to communicate the news to them that their participation is desired..

The improvement in the reading work in the grades used due to the intensive quality of the attention given to it by the participating teachers might be worthwhile to his schools.

He might rightly feel that his schools are being of service in helping to determine values for reading procedures for primary grades in general.

THE PRINCIPAL

Since each participating teacher would do all the work with her own class in the usual place at the usual time, school routine would not be affected.

Since only such teachers as are interested in doing this work and have the scientific point of view would take part, no unusual attitudes on the part of teachers concerned would interfere with the morale of the building.

The special attention given to reading on the parts of participating teachers would perhaps bring about better work in reading in the classes used and might, by contagion, benefit the whole school.

The results of such tests as the research worker would give would be available for the use of the teachers and principal.

The research worker would visit the school occasionally to watch the progress of the work in reading. Directions for the control of the reading work would, however, be given to the teacher in printed form, not by word of mouth.

PARENTS

Though no undue secrecy should rightly be attached to the fact that two procedures are being compared there seems to be no reason why either parents or children need be informed that reading work is being controlled. All children would be as well taught as they would be under ordinary circumstances; so parents would see no reason for dissatisfaction.

THE RESEARCH WORKER

The research worker would visit the classes about every month or six weeks to observe the progress of the work. She would not visit as a supervisor in any sense—merely as an observer.

Contacts with research worker would be through the simple directions and record blanks sent to the teachers. These could be sent to the superintendent in duplicate if it was so desired.

Knowing that the impression made on the teachers by the director of such a study was a large factor in determining their attitudes toward the work involved and its successful outcome, a sheet entitled "To the Teachers" was enclosed also for the purpose of showing the superintendent the attitude of the research worker toward the teachers. This material was used later almost word for word with the teachers themselves. It is given in full in Chapter V.

As a result of sending the letter to the superintendents, the research worker was invited to confer with four of them. Of the others, one wrote a courteous reply in which he told of a study in the field of arithmetic already set up in the system in his charge which was occupying the attention of the teachers. One did not answer. The research worker interviewed the four who set times for conferences. One system had too few pupils in the grades concerned to provide groups that could be balanced

in the two reading procedures to be compared. In another, an unstable school population resulted in a large number of transfers to other schools during the year. The work on the part of the teachers was not justified under these conditions, as only a small number of pupils would have remained in the classes throughout the progress of the study. The two remaining systems provided a sufficient number of pupils in typical situations for the study and therefore the plans were carried through in them.

The two school systems in which the work was done were known as Center I and Center II. In Center I, twenty-four classes were used, eight in each of the transition grades taken from four schools. In Center II, thirty-eight classes taken from nine schools were used—fourteen second grades, twelve third grades, and twelve fourth grades.

Summary

Six school systems were considered suitable for the work in the comparative study of two procedures in reading in the lower elementary grades. Two were not available and two did not provide a sufficient number of pupils to give significant results. The remaining two were chosen for the work. Letters with enclosures showing what was involved in the work and conferences between the superintendents and the research worker set forth the factors involved in the work of this study.

CHAPTER V

GETTING THE WORK STARTED

The superintendent in each of the two centers for the comparative study of reading procedures arranged a conference between the supervisor of elementary grades and the research worker at which plans for starting work in the classrooms were organized. Decisions were reached as to the classes to be chosen for the work, a time for the research worker to meet the teachers, and the time when work was to begin.

The supervisor in each case selected the classes. All the classes in the grades concerned were used if they were average in size. In a few cases were teachers were recovering from illness or were definitely opposed to doing work of the kind required, their classes were not included. For each class working under one procedure there was found a class available for work under the other procedure.

A rough matching of groups of children was made in the following manner. A low section of each grade working under the individual procedure was balanced by a low section of the same grade working under the class procedure. Since these low sections were in different schools, care was taken to make sure that the children in the two schools were about equally capable and that they came from the same type of environment. In a sense, the schools were matched as well as the groups of children. The supervisors, whose judgments were based upon the results of their own observation and their knowledge of the opinions of teachers and principals, matched the groups and schools. Thus a group of children thought by the supervisor to be slow and dull was matched with another group thought to be equally slow and dull if the two groups came from the same type of environment. High sections were matched in the same way.

In one center the supervisor advised conferences between the principals of the schools and the research worker. The reason

for this advice was that the principals were in charge of the work of the schools and would make the final decision as to whether such a study should be carried on. If they approved they should understand the purposes of the work and should also know what it involved in the work of the teacher. Only one principal out of the ten interviewed raised any objection to the work. As only two classes in the school under the direction of that principal could be used, it was considered best not to press the matter. It may be pointed out again here that in the original plan it was expressly stated that only teachers who were willing to attempt the work were to take part in the study. This rule was applied to principals also.

In the other center, the supervisor talked with the principals, explained the nature of the work that was contemplated, and obtained their consent to proceed with the plan. Throughout the progress of the experiment, all the principals were helpfully coöperative.

Meetings of the participating teachers and the research worker were arranged in each center. In each case the supervisor was in charge of the meeting. The same mimeographed material and the same explanation of the proposed study were given the teachers in the two centers. The supervisor in each case read the list of teachers who were to participate in teaching by the individual reading procedure and the list of those who were to teach by the class reading procedure. One of the supervisors suggested that the two procedures be referred to as the Individual Group and the Sets Group. This suggestion was accepted and thereafter the classes were referred to in these terms. Since it seemed to convey the meaning of the types of procedure to the teachers, the terms were used repeatedly in the directions and other material that was prepared for them.

The substance of the points given in the talk with the teachers was also given them on mimeographed sheets. The first sheet, entitled "To the Teachers" (the same sheet referred to in the preceding chapter as having been sent to superintendents), represented an attempt to put in the hands of the teacher a simple and clear statement of the problem, the reasons for working on such a problem, something of the spirit in which the work should be done, and suggestions of the possible uses of results of such a study.

To the Teachers

Which is better in teaching children of the second, third, and fourth grades to read—*extensive individual reading* or *class reading?*

Things to consider:

1. People have shown that reading can be well taught by each procedure.
2. It has not been shown that either procedure is better for second, third, or fourth grade.
3. It may be that one is better. If so, it should be known—first, for the sake of the children and, second, for the teacher's sake in order that her success may be the best possible.
4. We need teachers who can work on this problem in a way that will clear up the situation by enabling us to make a comparison of the two procedures.
5. To give each procedure a fair trial, teachers are needed who are not too enthusiastically in favor of either procedure, or, if they have a preference, are able to put it aside while taking part in this work and to reserve their judgments until the work on this problem is complete.
6. To give each procedure a fair trial, such factors, as *time given to reading* and *type of reading work done* would need to be uniform in all classes. To this end simple mimeographed suggestions should be provided for each participating teacher so that she would not be under the necessity of working out elaborate plans during the progress of the work.
7. Tests should be given at the beginning and at the end of the period during which the work is in progress. The research worker should provide the tests and furnish the teacher with the results as soon as possible.
8. From time to time during the progress of this work, it would be advisable to find out certain things about the attitudes of the children toward the reading. For this purpose certain record cards should be provided by the research worker which could be filled out by the teacher with little expenditure of time. Two or three times during the progress of the work would probably prove a sufficient number of times.
9. Participating teachers would want to know what use is to be made of the results of the work. When the period for carrying on this work is over and the results are carefully examined, the conclusions, whether they show one procedure to be better than the other or whether they show the two procedures to be equally effective, will be put into some kind of permanent form for the use of those interested in teaching children to read in second, third, and fourth grades. We may hope that this comparative study of two procedures will help teachers in planning their work in the years that are just ahead. If this is the case the work will have been worthwhile and each participating teacher and each school system involved will have performed a worthy service to girls and boys.

It was decided that, due to the fact that the situation was to be kept as nearly typical of the average public school situation as possible, the advice of the research worker should not be available during the period when the experiment was in progress. For this reason, certain possibly troublesome points were raised in the meetings with the participating teachers. Such statements as were made in these meetings were also given to the teachers in mimeographed form. It may be added here that this material had been submitted to the supervisors before it was put in final form for the teachers and had been somewhat modified and added to as a result of their suggestions.

The following twelve points were treated and distributed to all the teachers in mimeographed form for reference as the work progressed:

FOR TEACHERS OF BOTH INDIVIDUAL AND SETS GROUPS

Class Organization

Teacher may work with class as a whole or may divide it into groups, each group to use the time for reading given below under "Time." It would probably be better not to divide the class into more than two groups.

Public School Situation

It is to be kept in mind that we are working in a typical public school situation. The work is controlled in regard to the *amount of time given to it* and in the *type of reading work done*. The details are, as in any such situation, left to the teacher. It is hoped that suggestions that are made about these details may prove helpful.

Time

The *same amounts of time* are to be given to all classes of the same grade. The schedule for each grade is given below:

Second grade—60 minutes a day.
Third grade—60 minutes a day.
Fourth grade—45 minutes a day.

This time includes oral reading, silent reading, preparation for reading, reading drill, reading seatwork and discussion of material read. The program should be flexible enough so that if, by chance, a longer or shorter period is given to reading any one day the time may be made up the next day.

Spare Time Reading

A child may read a reasonable amount in spare time either at school or at home, if he wants to and the teacher is sure he is able to read the material he has without her help. Suggestions for such reading should come from the child, not from the teacher. In the case of the *Individual Group,*

the book would be some book the child has chosen. In the case of the *Sets Group* it would usually be his class reader.

Various Uses of Material Read

Selected oral reading of small portions of the material read during regular reading periods, telling about what has been read, recommending books or stories, etc., should occasionally be parts of the opening exercises, assemblies, entertainments, etc. No reading should be taught during these activities—reading is just *used.* Preparation for such activities should be made in the reading period.

Reports on Outside Reading

Children may occasionally report in reading period on books, papers, or magazines they have read outside reading time in school or at home. This should receive no emphasis lest it interfere with regular class procedure.

Teacher a Member of the Group

In each class the teacher should occasionally give a report on something she has read, or should read orally short, interesting parts of material she has found in her reading. Thus she shows herself a real member of the group.

Relation to Other Subjects

Reading time should not be used to prepare work in other subjects, such as history, geography, etc.

In material found in the books which the children are reading, there may be some that correlates with other subjects. This should be used, of course, but the period should still be a reading period, with the emphasis on teaching reading.

Reading should not be taught as such in work with textbooks in other subjects, such as history, geography, etc. Emphasis should be on the content of those subjects in the periods set apart for them—not on teaching reading.

Exchange of Books

Where there are not enough books provided for any one grade, the teacher of that grade and another teacher doing the same kind of work in the same grade might exchange books sometime during the year.

Seatwork

No assigned reading seatwork should be used outside of the time allowed for reading. If the teacher cares to place seatwork that involves the use of reading on a table or shelf where arithmetic seatwork, easy books, materials for painting, clay work, sewing, and other handwork take *equal* place with it, a child may be allowed to choose it or any other of the things mentioned during free or work periods or any odd moments of spare time.

Penalties and Rewards

No penalties or rewards should be given for poor or good work in reading. No undue emphasis on staying in after school, staying in at recess, etc., or on stars, prizes, or promotions, etc., should be made in connection with this reading work.

A child's thoughts should be on the content of the material he is reading, not on things outside of it, such as those mentioned above.

No Publicity is Necessary

There is no reason why the children should know that a comparison is being made between two ways of teaching reading. It would be better not to mention it in their hearing. If they remark on the fact that all reading is not being done the same way the teacher might smile and say, "There are ever so many good ways to learn to read," or some such thing.

The beginning of the work with the children in either procedure was recognized as difficult for teachers, who were in many cases making changes from their accustomed procedure in teaching reading. Therefore suggestions for the beginning days of the work were made. Up to this point the material given to the teachers was the same for all. At this point the material given to the Sets Group teachers of necessity differed from that given to the Individual Group teachers. That given to the Sets Group teachers follows:

DIRECTIONS FOR SETS GROUP

How to begin with sets of books when children have been doing only individual silent reading.

1. Watch children who are reading books of which sets of twenty or forty are available.
2. When one of these children shows special interest in a story in one of these books let him tell the class about it and read parts of it.
3. Find that time is too short to hear all of it.
4. Tell the children that you have a number of books containing that story which you could get out for them the next day.
5. At the beginning of the next reading period give these books to the children who want them and say, "Perhaps we can have a good time reading it together. How would you like that?" or some such statement.
6. Encourage the children to join the group, giving a copy of the book to each child.
7. Carry on a class reading lesson with this book.
8. Thus class reading is begun. In the course of a week or two, all children will be reading in sets of books either in groups or as a whole class.
9. Gradually remove the individual books without commenting on the fact that you are doing so.

10. Keep a few of the easiest books to use with other seatwork material of various kinds for free or work periods or spare time. (See Seatwork on sheets For Teachers of Both Groups.)

The suggestive material on how to begin the work in the Individual Group is given below:

Directions for Individual Group

To start individual silent reading when children have been reading from sets of books.

1. Cut down time used for oral reading and replace oral reading with silent reading.
2. Discuss the material read with the class, omitting oral reading and retelling as much as possible.
3. Notice that some children read faster than others and at the same time easily comprehend what they read.
4. Call attention to this rapid, but at the same time, careful reading as something desirable.
5. Encourage children to read ahead at their own rate.
6. Gradually drop class oral reading and class discussion of what is read.
7. As each child, reading at his own rate, finishes the book he is reading, provide other easy material for him.
8. All material used must be *easy* and *interesting*. If the set which the children are reading is difficult for them, use an easier set for this transition to individual reading.
9. Thus individual silent reading is begun. In the course of a week or two children will be reading different books or different places in the same book.

The material given the teachers thus far was suggestive. If they knew better ways to start the work they were encouraged to use them, and it was recognized that in any case suggestions would have to be adapted to the class situation and the teacher's way of working. There were certain things, however, to which all teachers must conform if the results were to be significant. Time was one. The fact was emphasized that the time given to teaching reading must be carefully planned and controlled. A sheet for each procedure stated definitely the amount of time to be given each day to the teaching of reading. It was explained to the teachers that the total time limits were to be observed and that any variations in the proportions of time given to the various phases of reading must come within those total limits unless the general instructions on the sheets entitled "For Teachers of Both Individual and Sets Groups" provided definitely stated exceptions.

Following are the directions given; first those for the Sets Group teachers, and then those for the Individual Group teachers:

Sets Group—Time Schedule

SECOND GRADE

Morning

20 minutes for silent and oral reading and discussion of material read.
10 minutes for drill.

Afternoon

30 minutes for silent and oral reading and discussion of material read.

THIRD GRADE

Morning

Same as for second grade.

Afternoon

Same as for second grade.

FOURTH GRADE

45 minutes for silent and oral reading and discussion of material read.
If the teacher so desires 10 minutes out of a total of 45 minutes may be used for drill every day or every other day.

Individual Group—Time Schedule

SECOND GRADE

Morning

20 minutes for individual silent reading.
10 minutes for drill.

Afternoon

15 minutes for individual silent reading.
15 minutes for discussion of material read.

THIRD GRADE

Morning

Same as for second grade
or
30 minutes for individual reading with individual drill as needed.

Afternoon

Same as for second grade.

FOURTH GRADE

45 minutes for individual reading and discussion of material read.
Might be distributed over week as follows:
40 or 50 minutes for discussion.
175 or 185 minutes for individual silent reading.

In the *Individual Group* most of the child's reading should be silent but reading orally to the teacher, in assembly, morning exercises, etc., should also be used. A child who is going to read orally before a group should prepare for doing so during the reading period.

Since questions about materials seem to be vexing to public school teachers, it was thought best to give specific statements of the situation in regard to ways of obtaining the material needed for the work. The statements follow:

Sets Group—Materials

There should be a number of sets of readers for the grades concerned, such as *Pathway to Reading, Everyday Classics, Winston Readers,* etc. Each child in the class or group should have a copy of the book that is to be read.

There should be as many or as few of these sets of books as the teacher concerned would normally have or wish for.

The books should be those already in the classroom or school stockroom in sets of twenty or forty.

Where the teacher feels she has too few of these sets she might arrange to trade off during the year with another teacher of the same grade who has different sets of books.

The teacher's judgment should be the basis of choice of which books of those available are to be used and which book is to be used first.

Individual Group—Materials

There should be as many different books as possible.

More books should be added whenever possible.

The vocabulary used in these books should be *easy*—the English construction *simple* enough to be easily understood by the children.

The material should be varied in form and content. Stories, informational material, and a little poetry should be provided.

Books of the reader types as well as others usually used in the grades concerned should be included.

Such book lists as those found in the following places would be suggestive:

Pennell and Cusack, *How to Teach Reading,* pp. 200-204; 214.

Moore, *The Primary School,* pp. 328-34.

Germane and Germane, *Silent Reading,* pp. 359-66.

Hilpert, *Reading in the St. Cloud Public Schools,* pp. 80, 108, 117, 137, 184.

The teacher should use her own judgment freely in selecting books for her class.

How books for individual silent reading can be obtained:

Found in class equipment.

Found in school stockrooms.

Borrowed from the public library.

Brought by children (must be censored).

Given by P.T.A. or other clubs.
Bought with proceeds of entertainment.

Having set forth before the participating teachers the problem to be worked upon, the general considerations involved, suggestions for beginning the work, the time to be used for the work, and desirable materials and suggestions on how to obtain them, there remained but one more point to discuss, namely, the desirable classroom procedures. In the many available books on how to teach reading, there are to be found all sorts of suggestions on this important matter. It is not known how closely such suggestions are followed in public school practice. It was thought that it would be wise to get information from public school classrooms for use as a basis of a list of suggestions for the teaching of reading by the two procedures and to combine such suggestions with others known to have been successfully used in teaching reading.

One hundred ten senior normal school students who had just completed ten weeks of practice teaching in public schools scattered over a wide area were asked to describe the procedures in teaching reading which they had observed or had been required to use during their practice teaching. The necessity for being accurate in their descriptions was impressed upon them. These descriptions were studied and lists of the ways public school teachers had proceded in teaching reading were made. These formed a basis for two lists of suggestions which were later given to the participating teachers of the two procedures in this comparative study. The selection of the points from the lists made from the descriptions given by the practice-teacher students was arbitrarily made and any items which did not seem to meet the demands of modern psychology and pedagogy were discarded. A few suggestions which did not appear on the lists were added. On the whole, however, the suggestions given to the participating teachers came from contemporary public school classroom practice.

The suggestions for work in the Sets Group and in the Individual Group were given the teachers with the understanding that they were, in truth, merely suggestive, that no one teacher would be likely to use all of them, and that they might be freely added to by the teachers as they found more effective ways of working, provided, of course, that the regulations as to amount

of time given to reading and the type of procedure used, whether Individual or Group, were strictly adhered to. The suggestions given to the teachers in mimeographed form follow:

SUGGESTIONS FOR WORK IN SETS GROUP

1. Child reads in the main what the teacher chooses for him to read.
2. Once in a while the class chooses which of two stories or books is to be read first.

3a. Teacher goes through material children are to read on any given day and lists the words they are likely to have trouble with. She uses these words for drill before proceeding with the reading and discussion, *or*

3b. As the children need help the teacher lists on the board or on a small pad the words they ask about. She uses these words for drill afterward.

4. Teacher makes selection for drill material from among the words collected, as shown above, on the basis of lists of words usually taught in the grades concerned. No unusual words should be used for drill.
5. Drill may be on phonetic elements of words, words, or phrases.
6. Drill should always be carried on with the class or group as a whole.
7. Teacher reviews the words drilled on the day before and adds the words in the new lesson.
8. Teacher studies class to judge how much material she may expect them to cover any day or group of days, in order that she may prepare for class periods.
9. Teacher tells children where to begin.
10. Teacher tells children to look over material to see if they need any help; then helps them work out words they do not know.
11. Teacher suggests the line of thought in the material; then tells children to read it.
12. Teacher tells children to read silently to find answers to questions she asks or has written on the board.
13. Teacher asks children questions after they have read either silently or orally to make sure they get the content.
14. Teacher occasionally has children write answers to questions on material they have read silently.
15. Teacher has children select parts of the material they have read silently for oral reading such as:
    The most important part.
    The funniest part.
    The part that tells about .....
    The most interesting part.
16. Teacher and children talk about the material the children have read. They discuss the characters, events, etc.
17. Teacher has children compare the material they are reading with other material they have read and with their own experience.
18. Children read whole story or other unit of material orally, taking turns reading aloud while other children follow in their books.

19. Teacher has children reread the material to improve their reading.
20. Teacher has the children tell the story they have read.
21. Children dramatize the story they have read.
22. When the children read well the material they have been working on, they may go on to the next thing in the book.
23. Teacher has children read unit of material then take test (yes-no, true-false, completion, selective answer, etc.) on content.
24. Teacher sometimes lets children call on each other to read, though she usually calls on them herself.
25. Teacher should always be naturally happy and pleasant so that a cheerful work atmosphere may be characteristic of reading periods.
26. The teacher should really try to like the material children are reading so that she may honestly enjoy it with them.

Suggestions for Work in Individual Group

1. Teacher calls attention to the fact that it is reading time.
2. Each child gets out his book and begins to read without being told anything further.
3. Teacher works for an atmosphere in which children get to work quickly. There is no allowance in the time schedule for waste time.
4. Teacher always works with children during reading periods. There should be no unsupervised reading during, or in preparation for, reading periods.
5. Teacher goes about among children, helping anyone who does not know a word or understand the thought.
6. Teacher watches children, judging whether or not they are really reading by their positions and the expressions on their faces or by the continued or fleeting attention given to their reading.
7. Teacher stimulates children to further work when interest seems to lag, by discussion of what they are reading or by asking questions to be sure they can get the content. This also sends them on through further content.
8. Teacher suggests uses for the material children are reading or approves their own suggestions for using it.
9. Only part of what children read is used for oral reading or discussed with others. However, *all* children should find such use for some of the material they read.
10. Teacher studies each child's need as she helps him or discusses with him what he is reading. This helps her to provide material that will interest him and help him to overcome his difficulties.
11. Children should read orally to the teacher now and then just because she asks them to. This helps her to judge how well they are getting the content.
12. Teacher provides opportunity for each child to choose his own book when he has finished the one he is reading.
13. Teacher helps child to make good choices of books to read.
14. Teacher always approves child's choice before he proceeds with his

reading on the basis of her knowledge of his ability to read the book at a fair rate and with good comprehension.

15. When a child's choice of a book has been approved the teacher requires that he read the whole book before taking another. Some few exceptions may be made in the case of poetry, which is always hard for children to read alone, or in the case of stories the teacher knows he has read several times before.
16. Teacher works out an attractive arrangement of books where children can easily look them over:
    On table—might be called library table.
    On shelf or window sill.
    On one end of teacher's desk.
    Children might bring box and make table or bookcase. They would like to paint it or make cover for it.
17. Teacher makes sure that books are *easy* for the children so they can read rather rapidly and get the content quickly.
18. Teacher should reserve some books for later use, calling attention to them as she brings them out for some good reader in the class.
19. Teacher should always be naturally happy and pleasant so that a cheerful work atmosphere may be characteristic of reading periods.
20. Teacher should try to really like material children read so that she may honestly enjoy it with them.
21. Teacher should know the material which the children are reading; otherwise it will be hard for her to *know* whether or not the children are reading.
22. Items 4 to 10 above are partial checks on whether or not children are really reading. Others are as follows:
    Direct questions on content.
    Yes-no, true-false, completion, or selective answer tests made by teacher for part of the material children read should be used sparingly.
    Book reports given orally or occasionally in written form.
23. In the discussion of material read children tell the class or group something about what they have read, what they found interesting about it, who they think would like to read it and why, etc.
24. Sometimes a child reads aloud a portion of what he has read silently, and tells other interesting parts.
25. *All children* should have an opportunity in one or more of these ways to show that they have read at least every week or ten days.
26. Only good oral reading should be tolerated. Children might practice oral reading in groups of two or three before reading to larger groups.
27. Teacher lists on board or on small pad words children have difficulty with and selects from the list thus assembled material for drill. Thus children feel they are working on words they and their classmates need to know.
28. Drill may be carried on with class, group, or individually. In the second

and third grades it would probably be better to carry on drill with group or class.

29. Drill may be given on phonetic elements of words, words, or phrases.
30. Teacher encourages children to ask frankly for help when they need it and holds herself continually in readiness to give that help.

Summary

Conferences with the administrators, supervisors, and teachers in the school system used in this study were necessary steps in preparation for work upon it. Very definite directions in regard to time and type of work, together with suggestive material for classroom procedures, were given to all persons concerned in the study.

CHAPTER VI

THE DATA COLLECTED

The data used in making comparisons of the results of work in reading under the two procedures, were grade, section of grade, chronological age, intelligence quotient, and change in score between initial and final reading tests.

The methods of grade placement in the two school systems used were typical of public school practice. Pupils were placed in these grades as a result of the combined subjective judgments of teachers, principals, and sometimes supervisors. No test results were available except in the fourth grades in one of the systems. Even with these pupils grade lines had not been interfered with, though there had been some regrouping within the grades as a result of the tests.

High and low sections of the grades were part of the organization in both centers. Promotion was made once a year. High and low sections were equal so far as progress through the school was concerned. The division into these sections merely meant that pupils in high sections were thought to be better workers, while those in low sections were thought to be slower and duller. The placing of pupils in high and low sections was done on the basis of subjective judgment, except for a slight variation in the fourth grades in one school system. Again, it may be said that the situation was typical of public school practice.

The participating teachers provided the information on chronological age. They took it, in almost every case, from the official files and checked it before giving it for use in this study.

The reading examinations used were chosen because each of them is made up of two or more tests, the scores for which are combined in the total score for the examination. The total score indicates the level of general reading ability which is the type of reading ability with which this study is concerned. The reading tests given in the grades were as follows:

Second Grade
Haggerty Reading Examination—Sigma 1
Test 1
Test 2
Third Grade
Stanford Achievement Test—Reading Examination, Form B
Test 1
Test 2
Test 3
Fourth Grade
Stanford Achievement Test—Reading Examination, Form B
Test 1
Test 2
Test 3

Growth, or change in reading score, is used in every comparison made in this study. It is the difference between the total score made on the initial reading examination and the total score made on the final reading examination. The initial reading tests were given early in January, 1928, and the final tests in May of the same school year. Exactly the same number of school days passed between the initial and final tests in all cases.

The information regarding the intelligence of pupils was taken from scores on two group intelligence tests given during the latter part of February and the first week in March, 1928. The intelligence quotients used in certain of the comparisons of growth in reading ability under the two procedures were the combined results of the two tests. The intelligence tests given in the grades were as follows:

Second Grade
Haggerty Intelligence Examination—Delta 1.
Otis Group Intelligence Scale—Primary Examination—Form A.

Third Grade
Otis Group Intelligence Scale—Primary Examination—Form A.
National Intelligence Test—Scale A—Form 1.

Fourth Grade
National Intelligence Test—Scale A—Form 1.
Haggerty Intelligence Examination—Delta 2.

In order that the distributions and tabulations used in work on this study might have a high degree of accuracy, the data were punched on Hollerith cards and sorted by the Hollerith machine method. Distribution tables were then made by a tabu-

lating machine which gives results as nearly accurate as it is possible to obtain them.

The results in developing reading ability by the two procedures, S (Sets Group) and I (Individual Groups), were compared by computing the difference of the means and finding the critical ratio [1] of the probable error of that difference to the difference of the means.

In interpreting the results of this study the most important figure for consideration is the critical ratio. Its size determines the significance of the difference of the means obtained from the results of procedures S and I.

A critical ratio of 3 indicates that a difference is significant.[2] A critical ratio of less than 3 indicates that the difference is not significant.

Summary

Data used in work on this study were: (*a*) grade and section placement of the pupils, (*b*) chronological ages of the pupils, (*c*) intelligence quotients, and (*d*) change in reading test scores between the initial and final tests.

The data were sorted and tabulated by the Hollerith machine method in order to obtain accuracy.

The statistical technique of the difference of the means was used in working with the data.

[1] McGaughy, J. R., *The Fiscal Administration of Public School Systems*, pp. 6-10; 69-74.

[2] Jones, D. C., *A First Course in Statistics*, pp. 159-61.

CHAPTER VII

THE TREATMENT OF THE DATA

In the interpretation of the data showing the amount of improvement found in general reading ability, answers were sought to the following questions:

1. Do pupils in second, third, or fourth grades improve more in general reading ability under procedure S or procedure I?
2. Do pupils in high sections of second, third, or fourth grades improve more in general reading ability under procedure S or procedure I?
3. Do pupils in low sections of second, third, or fourth grades improve more in general reading ability under procedure S or procedure I?
4. Do pupils in second, third, or fourth grades divided by chronological age into normal age, slightly over age, or one year or more over age for grade groups show greater improvement in general reading ability under procedure S or procedure I?[1]
5. Do pupils grouped by intelligence into low, average, high, or very high groups show greater improvement in general reading ability under procedure S or procedure I?
6. Since a rough pairing of groups rather than of individuals was used, the further question should be answered as a check on the results obtained: Do pupils in second, third, or fourth grades, when closely paired on the bases of intelligence and chronological age, improve more in general reading ability under procedure S or procedure I?

In the following tables, in order to make it easy to see at a glance which procedure is favored, the difference of the means, the probable error of the difference of the means, and the critical

[1] Too small a number of pupils who were under age for the grade was found in the classes used to make it possible to determine significant differences in improvement in general reading ability under S and I for under age pupils.

ratio are recorded in the column of the procedure that has the higher mean change in score. For example, in Table I second grade pupils improved more under procedure S. Therefore the figures representing the difference of the means, the probable error of the difference of the means and the critical ratio are placed under the column of procedure S.

Grade Totals

Table 1 gives the results of comparing the changes in scores between the initial tests and the final tests of all pupils who took both tests. This change in score is taken to represent growth in reading ability during the period between the two tests. It shows that second grade pupils, of whom there were 281 working under procedure S and 231 working under procedure I made a mean average growth of 8.29 under procedure S and 8.04 under procedure I. The difference between the growth under the two procedures is 0.24, which is not a significant difference as shown by the critical ratio, 0.68. To indicate a significant difference between the two procedures, the critical ratio should be 3.00.[2]

Table 1 shows the number of pupils, the mean change in score, with its accompanying sigma and P. E., the difference of the means, the P. E. of the difference of the means, and the critical ratio for second grade, third grade, and fourth grade.

It will readily be seen that the difference of the means is small in each case and that the critical ratio in each case (0.68 for second grade, 0.62 for third grade, and 0.15 for fourth grade) indicates that the advantage of procedure S over procedure I is insignificant. One may say, therefore, that it appears, on the whole, that procedures S and I are about equally effective in improving general reading ability in second, third, and fourth grades in typical public schools.

Table 2 and all other tables in this study may be read in the same way that Table 1 is read, as the same technique has been used in working with the data which appear in them.

High Sections of Grades

During the time spent in setting up and carrying through the classroom work under procedures S and I, the supervisors and teachers often made the statement, and made it emphatically, that

[2] Jones, D. C., *A First Course in Statistics*, pp. 159-61.

pupils in the high sections of the grades would do well under procedure I, while those in the low sections would improve more under procedure S. In fact, it was with some difficulty that they were convinced that it was entirely fair to apply procedure I to the pupils in low sections, and apply procedure S to pupils in high sections. The reluctance on their part suggested the advisability of examining the data for high and low sections separately. This was, of course, necessary in order to maintain a proper balance between the S and I groups.

Table 2 shows that, although there was a difference in the mean change in score of more than 1 in each of the three grades, this difference was not sufficiently large to give either procedure a real and significant advantage, despite the fact that in the second grade the critical ratio is 2.83 in favor of procedure S—a ratio which nears 3.00, which would indicate a significant difference.

The conclusion is that the difference is not sufficiently great to give either procedure S or procedure I a real advantage in the high sections of the three grades studied. The two procedures appear to be of nearly equal effectiveness, as is shown by the grade totals in Table 1.

Low Sections of Grades

Table 3 shows that the differences in working by the two procedures in low sections of grades are not great enough to indicate a real advantage on the side of either procedure. The critical ratios, 2.66, 0.70, and 1.94, are too small to provide sure indications of a difference in effectiveness of the two procedures.

The conclusion may safely be drawn that in both high and low sections of the three grades, procedures S and I are about equally effective.

Normal Age for Grade

It is often stated that pupils tend to work in different ways at varying age levels. If this be true, it is quite possible that the difference in chronological age would affect their responses to procedures in reading.

From a distribution of the chronological ages of the pupils in each grade certain divisions were made in order that pupils of varying ages might be studied in relation to the effectiveness of

TABLE 1

RESULTS OF COMPARING THE CHANGES IN READING SCORES BETWEEN INITIAL AND FINAL TESTS FOR ALL PUPILS IN EACH GRADE

SECOND GRADE	PROCEDURE	
	S	I
Number of Pupils	281	231
Mean Change in Score	8.29	8.04
Sigma	6.07	5.99
P.E. of the Mean	0.24	0.26
Difference of the Means	0.24	
P.E. of the Difference of the Means	0.36	
Critical Ratio	0.68	

THIRD GRADE	PROCEDURE	
	S	I
Number of Pupils	269	236
Mean Change in Score	21.24	20.76
Sigma	13.28	12.52
P.E. of the Mean	0.54	
Difference of the Means	0.48	
P.E. of the Difference of the Means	0.77	
Critical Ratio	0.62	

FOURTH GRADE	PROCEDURE	
	S	I
Number of Pupils	232	249
Mean Change in Score	18.40	18.25
Sigma	15.63	15.68
P.E. of the Mean	0.69	0.67
Difference of the Means	0.15	
P.E. of the Difference of the Means	0.96	
Critical Ratio	0.15	

TABLE 2

RESULTS OF COMPARING THE CHANGES IN READING SCORES BETWEEN INITIAL AND FINAL TESTS FOR PUPILS IN HIGH SECTIONS OF EACH GRADE

SECOND GRADE	PROCEDURE	
	S	I
Number of Pupils	127	109
Mean Change in Score	9.14	7.77
Sigma	5.58	5.39
P.E. of the Mean	0.33	0.34
Difference of the Means	1.37	
P.E. of the Difference of the Means	0.48	
Critical Ratio	2.83	

THIRD GRADE	PROCEDURE	
	S	I
Number of Pupils	105	128
Mean Change in Score	21.92	20.67
Sigma	13.56	13.42
P.E. of the Mean	0.89	0.80
Difference of the Means	1.24	
P.E. of the Difference of the Means	1.19	
Critical Ratio	1.03	

FOURTH GRADE	PROCEDURE	
	S	I
Number of Pupils	105	125
Mean Change in Score	17.15	19.05
Sigma	16.06	16.16
P.E. of the Mean	1.05	0.97
Difference of the Means		1.90
P.E. of the Difference of the Means		1.40
Critical Ratio		1.35

TABLE 3

RESULTS OF COMPARING THE CHANGES IN READING SCORES BETWEEN INITIAL AND FINAL TESTS FOR PUPILS IN LOW SECTIONS OF EACH GRADE

SECOND GRADE	PROCEDURE	
	S	I
Number of Pupils	128	122
Mean Change in Score	6.82	8.29
Sigma	6.43	6.47
P.E. of the Mean	0.38	0.39
Difference of the Means		1.46
P.E. of the Difference of the Means		0.55
Critical Ratio		2.66

THIRD GRADE	PROCEDURE	
	S	I
Number of Pupils	138	80
Mean Change in Score	20.65	19.85
Sigma	13.53	11.33
P.E. of the Mean	0.77	0.85
Difference of the Means	0.80	
P.E. of the Difference of the Means	1.15	
Critical Ratio	0.70	

FOURTH GRADE	PROCEDURE	
	S	I
Number of Pupils	127	73
Mean Change in Score	19.44	16.72
Sigma	15.19	13.49
P.E. of the Mean	0.90	1.06
Difference of the Means	2.72	
P.E. of the Difference of the Means	1.40	
Critical Ratio	1.94	

TABLE 4

RESULTS OF COMPARING THE CHANGES IN READING SCORES BETWEEN INITIAL AND FINAL TESTS FOR PUPILS WHO WERE OF NORMAL AGE IN EACH GRADE

SECOND GRADE	PROCEDURE	
	S	I
Number of Pupils	99	119
Mean Change in Score	8.38	8.49
Sigma	10.21	6.06
P.E. of the Mean	0.69	0.37
Difference of the Means		0.11
P.E. of the Difference of the Means		0.78
Critical Ratio		0.14

THIRD GRADE	PROCEDURE	
	S	I
Number of Pupils	93	91
Mean Change in Score	21.82	22.72
Sigma	13.29	12.19
P.E. of the Mean	0.93	0.86
Difference of the Means		0.89
P.E. of the Difference of the Means		1.26
Critical Ratio		0.70

FOURTH GRADE	PROCEDURE	
	S	I
Number of Pupils	87	77
Mean Change in Score	17.65	21.06
Sigma	14.50	14.68
P.E. of the Mean	1.04	1.12
Difference of the Means		3.40
P.E. of the Difference of the Means		1.54
Critical Ratio		2.21

S or I procedures. Tables 4, 5 and 6 give the results of this part of the study of the data.

It is a generally accepted fact that a child of six or almost six is of normal age to enter the first grade. Often he is admitted to that grade in September if his sixth birthday will come between September and January. It is assumed that a normal child progresses through the grades at the rate of one year to a grade. On this basis the normal ages for second grade, third grade, and fourth grade pupils are taken in this study to be seven, eight, and nine, respectively, and the date used is January 1. Six months is allowed either side of this date and the pupils whose ages fall between the age limits thus arrived at are said to be normal age for the grade.

Table 4 shows that children of normal age for the grade in which they are gain about equally from working under S and I procedures. There is no significant difference in growth in reading ability, since the critical ratio is in no case greater than 2.21.

Slightly Over Age for Grade

Table 5 shows that the improvement in reading ability in slightly over age pupils in second, third, or fourth grades is about equal under procedures S and I. The highest critical ratio—1.85 in the fourth grade—is not large enough to be significant.

More Than a Year Over Age for Grade

Results shown in Table 6 indicate that pupils who are retarded in second, third, and fourth grades grow in reading ability under procedure S about as well as they do under procedure I.

The conclusion is that whether pupils are normal age, slightly over age, or a year or more over age for a grade, they improve in reading ability about equally well under S and I procedures.

Intelligence Levels

A study of the effectiveness of the two procedures would be incomplete if the improvement of pupils of varying degrees of intelligence were not compared. Accordingly, a distribution of the I.Q.'s of pupils who worked under the two procedures was made and divided into sections representing low, average, high, and very high intelligence, and the differences in the improvement of pupils in each of these sections of the distribution were studied.

TABLE 5

RESULTS OF COMPARING THE CHANGES IN READING SCORES BETWEEN INITIAL AND FINAL TESTS FOR PUPILS WHO WERE SLIGHTLY OVER AGE IN EACH GRADE

SECOND GRADE	PROCEDURE	
	S	I
Number of Pupils	83	67
Mean Change in Score	8.92	9.17
Sigma	6.39	6.00
P.E. of the Mean	0.47	0.49
Difference of the Means		0.25
P.E. of the Difference of the Means		0.68
Critical Ratio		0.36

THIRD GRADE	PROCEDURE	
	S	I
Number of Pupils	69	54
Mean Change in Score	22.84	21.50
Sigma	13.35	12.27
P.E. of the Mean	1.08	1.12
Difference of the Means	1.34	
P.E. of the Difference of the Means	1.56	
Critical Ratio	0.85	

FOURTH GRADE	PROCEDURE	
	S	I
Number of Pupils	62	64
Mean Change in Score	19.87	16.54
Sigma	14.58	15.26
P.E. of the Mean	1.24	1.28
Difference of the Means	3.32	
P.E. of the Difference of the Means	1.79	
Critical Ratio	1.85	

TABLE 6

RESULTS OF COMPARING THE CHANGES IN READING SCORES BETWEEN INITIAL AND FINAL TESTS FOR PUPILS WHO WERE MORE THAN A YEAR OVER AGE IN EACH GRADE

SECOND GRADE	PROCEDURE	
	S	I
Number of Pupils	70	38
Mean Change in Score	6.36	5.15
Sigma	5.52	4.59
P.E. of the Mean	0.44	0.50
Difference of the Means	1.18	
P.E. of the Difference of the Means	0.67	
Critical Ratio	1.76	

THIRD GRADE	PROCEDURE	
	S	I
Number of Pupils	73	58
Mean Change in Score	18.20	16.17
Sigma	12.76	12.63
P.E. of the Mean	1.00	1.11
Difference of the Means	3.03	
P.E. of the Difference of the Means	1.50	
Critical Ratio	2.01	

FOURTH GRADE	PROCEDURE	
	S	I
Number of Pupils	74	49
Mean Change in Score	17.86	14.89
Sigma	17.94	14.57
P.E. of the Mean	1.40	1.40
Difference of the Means	2.96	
P.E. of the Difference of the Means	1.98	
Critical Ratio	1.49	

Low Intelligence

In only one grade were there enough pupils of low intelligence to make it possible to compare the relative effectiveness of the two procedures with such pupils. Table 7 shows the two procedures to be about equally effective. The critical ratio is 1.05, which shows no real difference in development of reading ability under the two procedures.

TABLE 7

Results of Comparing the Changes in Reading Scores between Initial and Final Tests for Pupils of Low Intelligence (I.Q. 90 and below) in the Second Grade

Second Grade	Procedure	
	S	I
Number of Pupils	42	29
Mean Change in Score	5.80	5.00
Sigma	5.47	4.06
P.E. of the Mean	0.56	0.50
Difference of the Means	0.80	
P.E. of the Difference of the Means	0.76	
Critical Ratio	1.05	

Average Intelligence

Table 8 shows that the two procedures were about equally effective in improving reading ability with pupils of average intelligence. In no case is the critical ratio greater than 2.18, which is too low to indicate a real and significant difference between the two procedures.

High Intelligence

Pupils of high intelligence improve in reading ability about equally well under procedure S and under procedure I, as may be seen by examining the comparisons given in Table 9. There is no significant difference in the development of reading ability in any of the three grades studied, as shown by the critical ratios the highest of which is 2.01.

TABLE 8

RESULTS OF COMPARING THE CHANGES IN READING SCORES BETWEEN INITIAL AND FINAL TESTS FOR PUPILS OF AVERAGE INTELLIGENCE (I.Q.91–110) IN EACH GRADE

SECOND GRADE	PROCEDURE	
	S	I
Number of Pupils	100	94
Mean Change in Score	8.60	8.02
Sigma	5.95	6.17
P.E. of the Mean	0.40	0.42
Difference of the Means		0.32
P.E. of the Difference of the Means		0.58
Critical Ratio		0.55

THIRD GRADE	PROCEDURE	
	S	I
Number of Pupils	30	41
Mean Change in Score	24.76	21.70
Sigma	11.64	12.12
P.E. of the Mean	1.43	1.27
Difference of the Means	3.05	
P.E. of the Difference of the Means	1.92	
Critical Ratio	1.59	

FOURTH GRADE	PROCEDURE	
	S	I
Number of Pupils	73	72
Mean Change in Score	21.42	17.55
Sigma	15.94	15.72
P.E. of the Mean	1.25	1.25
Difference of the Means	3.86	
P.E. of the Difference of the Means	1.77	
Critical Ratio	2.18	

TABLE 9

RESULTS OF COMPARING THE CHANGES IN READING SCORES BETWEEN INITIAL AND FINAL TESTS FOR PUPILS OF HIGH INTELLIGENCE (I.Q. 111–125) IN EACH GRADE

SECOND GRADE	PROCEDURE	
	S	I
Number of Pupils	66	45
Mean Change in Score	9.83	9.82
Sigma	6.11	5.35
P.E. of the Mean	0.50	0.53
Difference of the Means	0.01	
P.E. of the Difference of the Means	0.74	
Critical Ratio	0.01	

THIRD GRADE	PROCEDURE	
	S	I
Number of Pupils	76	55
Mean Change in Score	22.63	24.16
Sigma	11.71	14.61
P.E. of the Mean	0.90	1.32
Difference of the Means		1.53
P.E. of the Difference of the Means		1.60
Critical Ratio		0.95

FOURTH GRADE	PROCEDURE	
	S	I
Number of Pupils	46	57
Mean Change in Score	13.10	17.29
Sigma	15.49	15.67
P.E. of the Mean	1.54	1.90
Difference of the Means		4.18
P.E. of the Difference of the Means		2.08
Critical Ratio		2.01

Very High Intelligence

Though there were not many pupils with I.Q.'s above 125, there were enough in third and fourth grades to make a tabulation of the improvement made by such pupils of value. Table 10 shows that procedures S and I are about equally effective with pupils who are very intelligent. The critical ratios—0.68 for third grade and 1.45 for fourth grade—indicate that there is not a sufficiently large difference in the improvement under the two procedures to be significant.

TABLE 10

Results of Comparing the Changes in Reading Scores between Initial and Final Tests for Pupils of Very High Intelligence (I.Q. 126 and over) in the Third and Fourth Grades

Third Grade	Procedure	
	S	I
Number of Pupils	28	35
Mean Change in Score	24.67	23.02
Sigma	16.68	10.17
P.E. of the Mean	2.12	1.15
Difference of the Means	1.65	
P.E. of the Difference of the Means	2.42	
Critical Ratio	0.68	

Fourth Grade	Procedure	
	S	I
Number of Pupils	29	61
Mean Change in Score	15.00	18.57
Sigma	17.01	14.13
P.E. of the Mean	2.13	1.22
Difference of the Means		3.57
P.E. of the Difference of the Means		2.45
Critical Ratio		1.45

TABLE 11

RESULTS OF COMPARING THE CHANGES IN READING SCORES BETWEEN INITIAL AND FINAL TESTS FOR PUPILS MATCHED IN PAIRS BY CHRONOLOGICAL AGE, INTELLIGENCE QUOTIENT, AND GRADE

SECOND GRADE	PROCEDURE	
	S	I
Number of Pupils	92	92
Mean Change in Score	8.50	8.34
Sigma	6.10	5.58
P.E. of the Mean	0.42	0.39
Difference of the Means	0.15	
P.E. of the Difference of the Means	0.58	
Critical Ratio	0.26	

THIRD GRADE	PROCEDURE	
	S	I
Number of Pupils	68	68
Mean Change in Score	24.35	22.95
Sigma	13.57	13.74
P.E. of the Mean	1.11	1.24
Difference of the Means	1.39	
P.E. of the Difference of the Means	1.67	
Critical Ratio	0.83	

FOURTH GRADE	PROCEDURE	
	S	I
Number of Pupils	84	84
Mean Change in Score	18.09	18.88
Sigma	15.48	16.73
P.E. of the Mean	1.13	1.23
Difference of the Means		0.78
P.E. of the Difference of the Means		1.67
Critical Ratio		0.46

Cases Matched in Chronological Age and Intelligence Quotient

Though throughout this study groups of pupils were roughly matched to assure a reasonable degree of equality between the groups of pupils working under procedures S and I, a certain number of individuals were paired on the bases of intelligence and chronological age and the results of comparing their gains between the initial test and the final test were studied as a check on any error that might have crept into the results shown in Tables 1 through 10 because of inadequate methods of pairing.[1]

Table 11 shows that when pupils are matched in pairs on the basis of I.Q. and C.A. there is no significant difference in growth in reading ability, as judged by the difference of the mean change in scores of pupils working under procedures S and I. That the difference is not real and significant is shown by the critical ratio, which is in no case as great as 3.00.

The conclusion is that the significance of differences shown in Tables 1 through 10 for which pupils working under procedures

[1] Pupils working under procedures S and I were matched in the following manner. The I.Q.'s of the pupils ranged from 60 to 164. The 105 points in this range of I.Q.'s were divided into groups of from 3 to 10, groups of 3 points near the center of the distribution where cases piled up, and groups of 4 or more points toward the ends of the distribution where cases were scattered. The same plan was used for dividing the age range in each grade. A pupil working under procedure S whose I.Q. was 100 and whose C.A. was 92 (months) was paired with a pupil working under procedure I whose I.Q. was in the same division of the I.Q. distribution (100-102) and whose C.A. was in the same division of the C.A. distribution (92-93).

An illustration of matching in the second grade follows:

I.Q.	C.A.	Pupil	Procedure	I.Q.	C.A.
94–96	84–85	A	S	100	92
97–99	86–87	B	I	102	93
100–102	88–89				
103–105	90–91	C	S	107	88
106–108	92–93	D	I	107	89

Pupil A, working under procedure S, had an I.Q. of 100 and a C.A. of 92; pupil B, working under procedure I, had an I.Q. of 102 and a C.A. of 93. Pupils A and B were matched because their I.Q.'s come in the same group to the distribution of I.Q.'s (100-102) and their C.A.'s come in the same group in the distribution of C.A.'s (92-93). Likewise, pupil C and pupil D were matched. Their I.Q.'s were identical (107) and their C.A.'s were in the same group in the distribution of C.A.'s (88-89).

This method of pairing allowed slight flexibility, but it was so slight that the pupils were considered to be closely matched. Variation of a month or two in the C.A. or of a point or two in the I.Q. was considered to make a negligible difference, if any.

S and I were roughly matched by grade and section is about equal to that shown in Table 11, for which individual pupils were carefully matched on the basis of I.Q. and C.A. Results shown in Table 11, then, act as a check on the reliability of the rough matching of groups of pupils used in obtaining the results shown in Tables 1 through 10.

Summary

In the work on the data collected during the progress of this study attempts were made to answer certain questions as to the relative effectiveness of procedures S and I in developing general reading ability. The answers to those questions, determined by using the technique of the difference of the means, are as follows:

1. There is no significant difference in effectiveness between procedures S and I in the second grade, third grade, or fourth grade. (Table 1)

2. The ratio of the difference between the means to the P.E. of that difference does not show a real advantage for either procedure S or procedure I in high sections of the second, third, or fourth grade. (Table 2)

3. Low sections of second, third, and fourth grades gain about equally as a result of working under procedures S and I. (Table 3)

4. Whether or not pupils are normal age for grade, slightly over age for grade, or a year or more over age for grade, the ratios of the differences between the means to the P.E. of those differences show that there is no true difference between the results of work done under procedure S and the results of work done under procedure I. (Tables 4, 5, and 6)

5. Pupils of low, average, high, and very high intelligence develop reading ability about equally well under procedures S and I, as is shown by the critical ratios of Tables 7, 8, 9 and 10. These ratios are in no case high enough to indicate a significant difference between the two procedures.[1]

6. When individual pupils in the S and I groups are matched

[1] The findings given under 5 of this summary differ slightly from those in a study by Zirbes made in 1921 in a private experimental school. (Zirbes, Laura, *Practice Exercises and Checks on Silent Reading in the Primary Grades.* The Lincoln School of Teachers College, New York.) Dr. Zirbes found in a six weeks' study of twenty-two second grade pupils working under extensive and intensive reading procedures that the "abler pupils" gained more under extensive and the pupils of "meager ability" more under intensive procedures. The difference in findings may be due to differences in number of pupils and length of the period of investigation.

on I.Q. and C.A., as reported in Table 11, no more insignificant differences are indicated between the two procedures than are shown when a rough pairing by grade and section is used (Tables 1 through 10). The data in Table 11 may serve as a check on the reliability, so far as matching groups is concerned, of the results given on Tables 1 through 10.

On the whole, the results found from applying the technique of the difference of the means to the collected data show no evidence of a real and significant difference between procedure S and procedure I.

CHAPTER VIII

CONCLUSIONS AND APPLICATIONS

Conclusions

The conclusions from the results of this comparative study in the transition grades of the effectiveness of teaching by the class reading procedure (S) and by the extensive individual reading procedure (I) in order to build up reading ability can be stated in two ways—one may be called a negative statement and the other positive.

Judging by the results obtained, there is no real significant difference between procedures S and I in building up general reading ability in the transition grades. This is shown to be the case whether we consider the total number of pupils in each grade, or the normal or over age pupils for the grade, or pupils of low, average, high, or very high intelligence, or pairs of pupils closely matched in intelligence and age. There is no definite evidence to indicate that it is more desirable to use one or the other procedure with any group of pupils in any one of the transition grades. This is the negative statement of the conclusions.

Stating the conclusions from the positive side is somewhat more helpful. It may be said that procedures S and I are about equally effective in developing reading ability in transition grades in typical public schools. Whether pupils are bright or dull, over age or normal age for the grade, in high or low sections, these procedures may be used to equal advantage. Unless advantages other than the development of reading ability are sought, either reading procedure may be recommended with equal assurance. This makes it possible and proper to consider the desirability of working for values in addition to the development of general reading ability and to recommend procedures upon the basis of such consideration. The values and recommendations which are set forth on the following pages are posited on these conclusions.

Values Other Than General Reading Ability

Certain values other than general reading ability are often mentioned in connection with the teaching of reading. Briefly stated, some of them are: (1) development of powers of evaluating and sensing relationships; (2) application of attitudes and knowledge gained through reading in meeting and solving the problems of everyday life; (3) breadth and range of information; (4) effective expression of ideas; (5) accurate reproduction of ideas obtained through reading; and (6) development of initiative and responsibility in desirable choices of reading activities.

The results of two interesting and significant studies have recently been published showing that extensive reading procedures have definite superiority in building up the first four of these values with high school [1] and college students.[2] Whether children in the transition grades would build up the same desirable skills in evaluation, problem solving, acquisition of breadth and range of information, and adequate expression of ideas by working under the extensive individual reading procedure still has to be proved. Those who have watched children working under both procedures claim that, for elementary school children, these values are inherent in procedure I more than in procedure S. It is probably safe to assume that these values are present in the transition grades as well as in high school and college.

There is evidence that in the accurate reproduction of ideas gained from reading, procedure S, or intensive reading, has an advantage.[3] It is the only value reported on in the studies referred to in which procedure S has a definite superiority. It is a worthwhile value, however, and should not be overlooked in any program which is to develop reading attitudes, habits, and skills.

In any type of work which emphasizes individual responsibility, such as procedure I reading, independent choices, initiative, and interest are present to a higher degree than in a more teacher-controlled type of work such as procedure S reading. Great interest is likely to result and hence a more enthusiastic attitude.[4]

[1] Coryell, Nancy Gillmore. *An Evaluation of Intensive and Extensive Teaching of Literature.* Bureau of Publications, Teachers College, Columbia University, New York, 1927.

[2] Good, Carter V., *The Supplementary Reading Assignment.* Warwick and York, 1927.

[3] *Ibid.*

[4] Coryell, Nancy Gillmore, *An Evaluation of Intensive and Extensive Teaching of Literature,* p. 39. Bureau of Publications, Teachers College, Columbia University, New York, 1927.

The factors other than general reading ability that are suggested in this brief discussion of values play an important part in the development of the whole child at which present-day education aims. They have a considerable effect upon recommendations made as a result of this study.

Recommendations for Elementary School Practice

It is recommended:

1. That both procedures be used in the second, third, and fourth grades since both are equally effective in building up general reading ability and both have other important values.

2. That extensive individual reading be used more than class reading since it has more value [1] for the development of desirable attitudes, habits, and skills in reading, in addition to equal effectiveness in building up general reading ability.

3. That class reading be used, but, since it has only one proved value [2] outside of building up general reading ability, that it be used sparingly and for the definite purpose of developing that value—accuracy.

Recommendations for Further Study in This Field

It is recommended:

1. That studies be made to determine conclusively whether values which have been established for procedure I for high school and college students, as well as such other general values as may appear from further consideration of the problem, are inherent in procedure I in the transition grades.

2. That studies be made of effective techniques of teaching extensive individual reading in the transition grades and that the results of these studies be made available for teachers, supervisors, and normal school instructors.

3. That studies be made of effective techniques of class reading procedures for the specific purpose of developing habits of accuracy in reporting and using materials read.

4. That there be constructed a wealth of proper material for use in teaching children in the transition grades to read by extensive individual procedures.

[1] Coryell, Nancy Gillmore, *An Evaluation of Intensive and Extensive Teaching of Literature*, Bureau of Publications, Teachers College, Columbia University, 1927.

[2] Good, Carter V., *The Supplementary Reading Assignment*, Warwick and York, 1927.

5. That studies be made of ways of making materials for extensive individual reading easily available for children in the transition grades.

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